

REMARKS

Claims 1-25 and 28-74 are pending. No new matter has been added by way of the present submission. For instance, the claims have been amended to clarify the nature of the present invention and remove issues under 35 U.S.C. § 112, second paragraph, as supported by the originally filed application and claims. These amendments are clarifying and non-narrowing in nature. Parallel amendments have been entered into the specification by way of the substitute specification attached hereto. Accordingly, no new matter has been added.

In view of the following remarks, Applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims.

Issues under 35 U.S.C. § 112, second paragraph

The Examiner has rejected claims 1-25 and 28-74 under 35 U.S.C. § 112, second paragraph for the reasons recited at pages 2-4 of the outstanding Office Action. Applicants respectfully traverse this rejection.

By way of the present clarifying amendment, Applicants have rendered each issue raised by the Examiner moot. This will be explained below:

First, the Examiner asserts that the "siloxane groups" referred to as the reactive group on the surface of the support is unclear because siloxane groups are allegedly not reactive. Applicants respectfully disagree with the Examiner. The term "siloxane groups" has been appropriately described in the present claims and specification. For the Examiner's reference, Applicants provide Appendix A and Appendix B, which relate to Schemes 2 and 3, respectively. As described in these schemes, the first metallocene catalyst is reacted with the siloxane groups

on the silica support (see corresponding description at page 12, line 12 to page 15, line 2 of the originally filed specification).

In addition, as admitted by the Examiner, if the drying temperature of a silica support is 200 to 500°C, a less reactive siloxane group is obtained. However, if the drying temperature is above 600°C, a siloxane group has a highly reactivity (see corresponding description at page 5, line 7 to page 6, line 5 of the originally filed specification; see also I-S. Chuang and G. E. Maciel, Journal of American Chemical Society 118, 1996, 401; J. Blumel, Journal of American Chemical Society 117, 1995, 2112; L. H. Dubois, Journal of American Chemical Society 115, 1993, 1190; W.C. Finch, R.D. Gillespie, D. Hedden and T.J. Marks, J. Am. Chem. Soc., 112, 1990, 6221, copies of which are attached hereto).

It is therefore evident that the present invention provides a supported hybrid metallocene catalyst prepared by using the reaction of a highly reactive siloxane group on the support with a functional group of a metallocene compound. Therefore, the term "siloxane groups" is not an incorrect nomenclature and is correctly described in the claims of the present invention.

Second, the Examiner has noted that the phrase "a metalloid of a group XIV metal" does not make sense. This has been removed from the claims.

Third, the Examiner asserts that chemical formulas (a)-(c) (and sometimes (d)) lack antecedent basis since they are not part of formula 1. The claims have been clarified in this regard.

Fourth, the Examiner has rejected the use of parentheses in the claims. Applicants have removed all unnecessary parentheses from the claims.

Fifth, the Examiner has asserted that the symbol "X" in some claims is improperly defined. Applicants have clarified the necessary language.

Sixth, the Examiner has asserted that the symbol "D" is a divalent structure but sometimes improperly includes a trivalent atom nitrogen. This has been corrected to refer to "amine."

Seventh, the Examiner has rejected the use of the symbol "N", for instance, in claim 14, to define elements such as B and Al. The Examiner asserts that "N" is commonly used to refer to nitrogen. Applicants have adopted the nomenclature "M'" in the claims.

In view of the above, Applicants respectfully submit that the present claims fully satisfy the requirements of 35 U.S.C. § 112, second paragraph. The Examiner is therefore requested to withdraw these rejections.

Objections to the Specification

The Examiner has objected to the specification for the same issues as discussed under 35 U.S.C. § 112, second paragraph. Applicants traverse and submit that specification has been amended in a parallel fashion to the claims. Thus, this objection is moot. Reconsideration and withdrawal of this objection are respectfully requested.


In view of the above, Applicants respectfully submit that the present application is in condition for allowance. Therefore, the Examiner is requested to withdraw all rejections and allow the present claims.

If the Examiner has any questions or comments, please contact Craig A. McRobbie, Reg. No. 42,874, at the offices of Birch, Stewart, Kolasch & Birch, LLP, at the number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to our Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under § 1.17; particularly, extension of time fees.

Dated: June 8, 2007

Respectfully submitted,

By 

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Attachments: Substitute Specification

Red-Lined Version of Substitute Specification

Appendix A -Scheme 2

Appendix B - Scheme 3

I-S. Chuang and G. E. Maciel, Journal of American Chemical Society 118, 1996, 401.

J. Blumel, Journal of American Chemical Society 117, 1995, 2112.

L. H. Dubois, Journal of American Chemical Society 115, 1993, 1190.

W.C. Finch, R.D. Gillespie, D. Hedden and T.J. Marks, J. Am. Chem. Soc., 112, 1990, 6221.